

Work Order ID 90046

September-13-12 10:09:15 AM

\*90046\*

U/R

Page 1

Item ID: D350-748-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID: U/R

Stop \*NS2\*

Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 10/19/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 12-09-14 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr

Revision Nbr

D350-748-141

F U/R

OK 9/12/9/18

100

\*100\*

DOCUMENT CONTROL

DC

Memo

Document Control

Photocopy bluefile & type labels per RPP D350-748-101 CHG002

110

\*110\*

BENDING MACHINE - CROSSTUBES

CNC Bend 1

Memo

CNC Delta 100 Bender

Bend tube as per Dwg D350-748-141 using CNC bender program D350F and Folio FT \_\_\_\_\_

\*\*\*\*UNDER BEND .225" PER SIDE\*\*\*\*

\*\*\*\*USE (4) DT9824 SHIM BLOC TO CHECK STRAIGHTNESS\*\*\*\*

12-12-18

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											

FAULT CATEGORY											
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

# Work Order ID 90046

\*90046\*

Page 2

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Item ID: D350-748-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID: U/R

Stop \*NS2\*

Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 10/19/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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120

QC15- Crosstube Dimensional Check

0.00

\*120\*

QC

Quality Control

Memo

0.00

\*\*\*\*USE (4) DT9824 SHIM BLOC TO CHECK STRAIGHTNESS\*\*\*\*

125

0.00

\*125\*

HandFXtube

Hand Finishing Crosstubes

Memo

0.00

\*\*\*Stress relief\*\*\* PS 1865/

Heat treat crosstube as per QSI010 4.3

Temp: \_\_\_\_\_

Start time: \_\_\_\_\_

Finish time: \_\_\_\_\_

Rev

127

QC16- Inspect dimensions to drawing

0.00

\*127\*

QC

Quality Control

Memo

0.00

126

Review - Inspect

SP 12-12-31.

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data	12/9/18	125	1	STRESS RELIEF @ 650 F ± 25 F FOR 2 HRS MIN. AIR COOL TO AMBIENT TEMP.	DAS 12 8-89 12.9.18	N/A					
Equip/Tooling											
Operator											
Material											
Setup											
Other	12/19/18	124	1	PRIOR TO STRESS RELIEF, DRILL Ø0.188 THRU HOLE, 2.00" FROM END OF CUFF. Qty(1) per cuff.	DAS 12 8-89 12.9.18	TOOLING HOLE FOR STRESS RELIEF.					
Process											
Supplier											
Training											
Unapproved											

FAULT CATEGORY			
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other

**Work Order ID 90046****\*90046\***

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September-13-12 10:09:15 AM

Item ID: D350-748-101

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID: U/R

Stop **\*NS2\***

Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 10/19/12 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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130

0.00

**\*130\***

Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Drill Tube as per Dwg D350-748-141 Using DT8876 A,B & C Drill Jigs,  
Set-up drill table as per QSI 010

2-Deburr

3-Engrave Part # and Batch # as per Dwg D350-748-141

4-Remove all marks from tube within limits of D350-748-141

5- Apply a light coat of LPS3 on the interior of tube

Batch: 1145

140

QC5- Inspect part completeness to step on W/O 0.00

**\*140\***

QC

Memo

0.00

Quality Control

CHECK 10 DEG HOLES WITH DT8876E (EUROCOPTER CLAMP)

DAS  
15  
13/13

131-3

DAS  
16  
13/13

13/13

JW 12-12-31  
MO 13/01/03

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
<b>FAULT CATEGORY</b>											
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other		

Work Order ID 90046

\*90046\*

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September-13-12 10:09:15 AM

Item ID: D350-748-101

Accept

\*N900040100\*

Setup Start \*NS1\*

Revision ID: U/R

Stop \*NS2\*

Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12 Start Qty: 1.00 \*1\*

Cust Item ID:

Required Date: 10/19/12 Req'd Qty: 1.00 \*1\*

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150

Outsource process-Cadplate per QSI017 4.1.9.1

0.00

\*150\*

Outsource3

Outsource process - Cad plate

Memo

Issue P/O: 1865T  
Stress relief at 375° for 5 hours  
Magnetic Particle Inspect per ASTM E1444  
Cadium Plate per AMS-QQ-P-416B, Class 1, Type 2  
Embrittle relief at 375° for 8 hours, Chromate Treat  
Possible Supplier: Southwest United Industries  
Ensure Certificate of Conformity is attached

0.00

18743

C213/01/07 ①

19086 C213/02/12 ①

C212/12/19 ①

160

Receive & Inspect for Damage & Mat'l Certs

0.00

\*160\*

Packaging

Memo

Ensure certificate of conformity is attached

0.00

Packaging

Ref 2 P ①

170

QC5- Inspect part completeness to step on W/O

0.00

\*170\*

QC

Memo

0.00

Quality Control

Pho →

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DOA 180708 Date: 180708

QA Closed:

Date:

Work Order: <u>90046</u> Part No. <u>D350-748-101</u> NCR No. _____				<b>DISPOSITION</b> Rework <input type="checkbox"/> Scrap <input checked="" type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b> <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input checked="" type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>							
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector				
Doc/Data	<u>15/04/10</u> <u>15/01/27</u>	<u>no</u>	<u>2</u>	Crack Found during end piling about 10 ft from from cuff.  <div style="font-size: 2em; transform: rotate(-30deg); opacity: 0.5;">           \$ 1518.35            (actual)         </div>	<u>S</u> <u>Q32012</u> <u>15/01/27</u>	Grind out / Blend out crack / mark.	<u>W/A</u>	<u>S</u> <u>15/01/27</u>	<u>S</u> <u>15/01/27</u>				
Equip/Tooling						ultra sound area of crack + record wall thickness.							
Operator						Tube scraped GAVE TO EM.				<u>W/A</u>			
Material													
Setup													
Other													
Process													
Supplier													
Training													
Unapproved													

FAULT CATEGORY			
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input checked="" type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other



**Work Order ID 90046****\*90046\***

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September-13-12 10:09:15 AM

Item ID: D350-748-101

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID: U/R

Stop **\*NS2\***

Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12 Start Qty: 1.00

**\*1\***

Cust Item ID:

Required Date: 10/19/12 Req'd Qty: 1.00

**\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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172

0.00

**\*172\***

Crosstubes

Memo

0.00

Crosstubes

\*\*\*LOAD TEST TO 3500LB FOR 1 MINUTE\*\*\*

174

Outsource process - NDT per QSI038 4.1

0.00

**\*174\***

Outsource2

Memo

0.00

Outsource process - NDT

176

Receive &amp; Inspect for Damage &amp; Mat'l Certs

0.00

**\*176\***

Packaging

Memo

0.00

Packaging

~~CL 13/02/26~~  
~~PID: 19183W/A~~

X1

IX

SP  
13-2-26

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

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QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>						
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<b>FAULT CATEGORY</b>												
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other	

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**\*90046\***

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Item ID: D350-748-101

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID: U/R

Stop **\*NS2\***

Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12 Start Qty: 1.00 **\*1\***

Cust Item ID:

Required Date: 10/19/12 Req'd Qty: 1.00 **\*1\***

Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
178	QC5- Inspect part completeness to step on W/O	0.00							
<b>*178*</b>									
QC	Memo	0.00							
Quality Control									
180	SprayPaint	0.00							
<b>*180*</b>									
SprayPaint	Memo	0.00							
Spray Painting	1-Prime inside crosstube as per QSI 005 4.2 2-Prime Outside of Tube as per Dart QSI 005 4.2								
190	QC14- Inspect Spray Paint	0.00							
<b>*190*</b>									
QC	Memo	0.00							
Quality Control	Then, Wrap in plastic bag to protect from scratches								

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											

FAULT CATEGORY				
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other	

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**Item ID:** D350-748-101

**Accept**

**\*N900040100\***

Setup Start **\*NS1\***

Revision ID: U/R

Stop **\*NS2\***

**Item Name:** Crosstube Installation, High Fwd

**Start Date:** 9/13/12      **Start Qty:** 1.00      **\*1\***

**Cust Item ID:**

**Required Date:** 10/19/12      **Req'd Qty:** 1.00      **\* 1 \***

**Customer:**

**Reference:**

**Approvals:** \_\_\_\_\_ **Process Plan:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Tooling:** \_\_\_\_\_ **Date:** \_\_\_\_\_

Run Start \*NR1\*

QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

200

0.00

**\*200\***

## Crosstubes

0.00

## Crosstubes

## Memo

## Crosstubes

1-Install Ground wire Insert,then insert screw and washer

2-Install Abraison strips as per Dwg D350-748-141 & QSI 035.

3-Install supports Using Dt8876 as per Dwg D350-748-141,Torque to 60-80 IN-LBS

210

QC5- Inspect part completeness to step on W/O	0.00
---	------

0.00

**\*210\***

0.00

QC

## Memo

## Quality Control

220

## Pick Kit

0.00

\*220\*

0.00

### Packaging

## Memo

### Packaging

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>						
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector			
Doc/Data <input type="checkbox"/>												
Equip/Tooling <input type="checkbox"/>												
Operator <input type="checkbox"/>												
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Setup <input type="checkbox"/>												
Other <input type="checkbox"/>												
Process <input type="checkbox"/>												
Supplier <input type="checkbox"/>												
Training <input type="checkbox"/>												
Unapproved <input type="checkbox"/>												
<b>FAULT CATEGORY</b>												
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other	

### Quality Control

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
<input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
<input type="checkbox"/>											
Operator <input type="checkbox"/>											
<input type="checkbox"/>											
Material <input type="checkbox"/>											
<input type="checkbox"/>											
Setup <input type="checkbox"/>											
<input type="checkbox"/>											
Other <input type="checkbox"/>											
<input type="checkbox"/>											
Process <input type="checkbox"/>											
<input type="checkbox"/>											
Supplier <input type="checkbox"/>											
<input type="checkbox"/>											
Training <input type="checkbox"/>											
<input type="checkbox"/>											
Unapproved <input type="checkbox"/>											

FAULT CATEGORY									
<b>Landing Gear</b>			<b>General</b>						
<input type="checkbox"/>	Bending	<input type="checkbox"/>	Bend	<input type="checkbox"/>	Grain	<input type="checkbox"/>	Ovalized	<input type="checkbox"/>	Pressure/Forced
<input type="checkbox"/>	Centre Not Concentric to O/S	<input type="checkbox"/>	BOM/Route	<input type="checkbox"/>	Hardware	<input type="checkbox"/>	Over/Under tolerance	<input type="checkbox"/>	Temperature/Cure
<input type="checkbox"/>	Cracks	<input type="checkbox"/>	Broken/Damaged	<input type="checkbox"/>	Inspection Incomplete	<input type="checkbox"/>	Part Incorrect	<input type="checkbox"/>	Weld
<input type="checkbox"/>	Crushed/Crimped	<input type="checkbox"/>	Burrs	<input type="checkbox"/>	Instructions Incomplete/Unclear	<input type="checkbox"/>	Part Lost/Missing	<input type="checkbox"/>	Wrong Stock Pulled
<input type="checkbox"/>	Cuffs	<input type="checkbox"/>	Contamination	<input type="checkbox"/>	Maintenance	<input type="checkbox"/>	Part Moved		
<input type="checkbox"/>	Heat Treat	<input type="checkbox"/>	Countersink	<input type="checkbox"/>	Mislabeled	<input type="checkbox"/>	Positioned Wrong		
<input type="checkbox"/>	Inspection Strip in Tube	<input type="checkbox"/>	Cut Too Short	<input type="checkbox"/>	Misread	<input type="checkbox"/>	Power Loss/Surge	<input type="checkbox"/>	Other
<input type="checkbox"/>	Ripples in Bend	<input type="checkbox"/>	Drill Holes	<input type="checkbox"/>	Offset				
<input type="checkbox"/>	Torque Waves in Extrusion	<input type="checkbox"/>	Drawing	<input type="checkbox"/>	Out of Calibration				
<input type="checkbox"/>	Turning Sequence	<input type="checkbox"/>	Finish	<input type="checkbox"/>	Out of Sequence				
<input type="checkbox"/>	Wave/Twist in Tube	<input type="checkbox"/>	Folio	<input type="checkbox"/>	Outside Dimensions				



# Picklist Print

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Page 1

Work Order ID: 90046

Parent Item: D350-748-101

Start Date: 9/13/12

Required Date: 10/19/12

Parent Item Name: Crosstube Installation, High Fwd

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP Rev:A New Issue 06-07-05 JLM  
 IPP Rev:B Update qty of MS21042L5 06-09-12 KJ VERIFY BY:DD  
 IPP Rev:C Rev B 07-11-15 DD  
 IPP Rev D Combined manufacturing 08.04.02 EC verified by: DD  
 IPP Rev:E 08-06-24 revD as per dwg DD verified by:EC IPP Rev:F 10.08.04 added QSI010  
 4.3 DD verf:EC  
 IPP REV:G ADD UNDER BEND COMMENT 12-05-28 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

ALS4-1032-225		Purchased	No			200	Each	2,785.0000	1	1			
---------------	--	-----------	----	--	--	-----	------	------------	---	---	--	--	--

Insert

Location	Loc Qty	Loc Code
FP-B	1346	
122290	1346	
ST281	1416	
108696	146	
110768	62	
118386	55	
118966	68	
121269	85	
122827	1000	
ST282	23	
120410	10	
120451	13	

AN4-41A		Purchased	No			220	Each	403.0000	8	8			
---------	--	-----------	----	--	--	-----	------	----------	---	---	--	--	--

Bolt

Location	Loc Qty	Loc Code
360	181	
121185	181	
ST360	222	
115108	3	
115705	1	
119328	68	
120423	150	

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
<input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
<input type="checkbox"/>											
Operator <input type="checkbox"/>											
<input type="checkbox"/>											
Material <input type="checkbox"/>											
<input type="checkbox"/>											
Setup <input type="checkbox"/>											
<input type="checkbox"/>											
Other <input type="checkbox"/>											
<input type="checkbox"/>											
Process <input type="checkbox"/>											
<input type="checkbox"/>											
Supplier <input type="checkbox"/>											
<input type="checkbox"/>											
Training <input type="checkbox"/>											
<input type="checkbox"/>											
Unapproved <input type="checkbox"/>											

FAULT CATEGORY									
<b>Landing Gear</b>			<b>General</b>						
<input type="checkbox"/>	Bending	<input type="checkbox"/>	Bend	<input type="checkbox"/>	Grain	<input type="checkbox"/>	Ovalized	<input type="checkbox"/>	Pressure/Forced
<input type="checkbox"/>	Centre Not Concentric to O/S	<input type="checkbox"/>	BOM/Route	<input type="checkbox"/>	Hardware	<input type="checkbox"/>	Over/Under tolerance	<input type="checkbox"/>	Temperature/Cure
<input type="checkbox"/>	Cracks	<input type="checkbox"/>	Broken/Damaged	<input type="checkbox"/>	Inspection Incomplete	<input type="checkbox"/>	Part Incorrect	<input type="checkbox"/>	Weld
<input type="checkbox"/>	Crushed/Crimped.	<input type="checkbox"/>	Burrs	<input type="checkbox"/>	Instructions Incomplete/Unclear	<input type="checkbox"/>	Part Lost/Missing	<input type="checkbox"/>	Wrong Stock Pulled
<input type="checkbox"/>	Cuffs	<input type="checkbox"/>	Contamination	<input type="checkbox"/>	Maintenance	<input type="checkbox"/>	Part Moved		
<input type="checkbox"/>	Heat Treat	<input type="checkbox"/>	Countersink	<input type="checkbox"/>	Mislabeled	<input type="checkbox"/>	Positioned Wrong		
<input type="checkbox"/>	Inspection Strip in Tube	<input type="checkbox"/>	Cut Too Short	<input type="checkbox"/>	Misread	<input type="checkbox"/>	Power Loss/Surge	<input type="checkbox"/>	Other
<input type="checkbox"/>	Ripples in Bend	<input type="checkbox"/>	Drill Holes	<input type="checkbox"/>	Offset				
<input type="checkbox"/>	Torque Waves in Extrusion	<input type="checkbox"/>	Drawing	<input type="checkbox"/>	Out of Calibration				
<input type="checkbox"/>	Turning Sequence	<input type="checkbox"/>	Finish	<input type="checkbox"/>	Out of Sequence				
<input type="checkbox"/>	Wave/Twist in Tube	<input type="checkbox"/>	Folio	<input type="checkbox"/>	Outside Dimensions				

# Picklist Print

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Page 2

Work Order ID: 90046

Parent Item: D350-748-101

Start Date: 9/13/12

Required Date: 10/19/12

Parent Item Name: Crosstube Installation, High Fwd

Start Qty: 1.00

Required Qty: 1.00

AN4-6A	Purchased	No	220	Each	1,313.0000	16	16
Bolt							

Location	Loc Qty	Loc Code
ST355	800	
122808	600	
123021	200	
ST356	513	
121243	500	
122151	13	

AN5-32A	Purchased	No	220	Each	337.0000	4	4
Bolt							

Location	Loc Qty	Loc Code
ST337	100	
122416	50	
122800	50	
ST338	50	
122993	50	
ST339	93	
122151	93	
ST340	94	
121541	94	

AN960JD10	NAS1149D0363J	Purchased	No	200	Each	0.0000	1	1
Washer								

AN960JD416	NAS1149D0463J	Purchased	No	220	Each	29.0000	32	32
Washer								

Location	Loc Qty	Loc Code
ST351	29	
116289	8	
119097	21	

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Shop Packet Print

Page 2

NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data <input type="checkbox"/>									
Equip/Tooling <input type="checkbox"/>									
Operator <input type="checkbox"/>									
Material <input type="checkbox"/>									
Setup <input type="checkbox"/>									
Other <input type="checkbox"/>									
Process <input type="checkbox"/>									
Supplier <input type="checkbox"/>									
Training <input type="checkbox"/>									
Unapproved <input type="checkbox"/>									

### FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other

# Picklist Print

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Page 3

Work Order ID: 90046

Parent Item: D350-748-101

Start Date: 9/13/12

Required Date: 10/19/12

Parent Item Name: Crosstube Installation, High Fwd

Start Qty: 1.00

Required Qty: 1.00

AN960JD516 NAS1149D0563J Purchased No  
Washer

220 Each 2.0000 8 8

Location Loc Qty Loc Code

ST338 2

1069059 2

D2856-400 Manufactured No  
Abrasion Strip

200 f 328.9994 1.181 1.2431579

Location Loc Qty Loc Code

ST403 224.798

81875 8.798

89352 216

ST409 104.2014

63735 0.6696

68076 0.3149

71164 8.46

86905 94.7569

D3500-1 Manufactured No  
Saddle

220 Each 47.0000 4 4

Location Loc Qty Loc Code

ST423 40

85421 40

ST425 7

76940 7

D3501-1 Manufactured No  
Bushing

220 Each 215.0000 16 16

Location Loc Qty Loc Code

ST051 215

67757 4

73391 6

74866 205

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NCR: Yes / No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
<b>FAULT CATEGORY</b>											
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other		

# Picklist Print

September-13-12 10:09:14 AM

Page 4

Work Order ID: 90046

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12

Required Date: 10/19/12

Start Qty: 1.00

Required Qty: 1.00

D3502-1 Manufactured No  
Support

200 Each 45.0000 2 2

Location Loc Qty Loc Code

LG050 35  
77041 35  
ST051 10  
73419 9  
74873 1

D350-748-141TRN  
Crosstube Turning Detail

Manufactured No

110 Each 2.0000

1 ~~SAO~~ 12-12-18

Location Loc Qty Loc Code

LG 2  
83277 1  
83278 1

B84661

① ~~FW~~ 12-12-04

MS21042L4  
Nut

Purchased No

220 Each 6,412.0000

24 24

Location Loc Qty Loc Code

314 3377  
122452 3377  
FP001 22  
8182 22  
ST300 13  
121444 13  
ST314 3000  
123021 3000

September-13-12 10:09:14 AM

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Page 4

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
<b>FAULT CATEGORY</b>											
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other		



# Picklist Print

September-13-12 10:09:14 AM

Page 5

Work Order ID: 90046

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12

Required Date: 10/19/12

Start Qty: 1.00

Required Qty: 1.00

MS210421.5 Purchased No

220 Each 1,512.0000 4 4

Nut.

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
300	404	
121652	404	
314	1000	
122452	1000	
ST300	108	
108827	4	
116105	1	
116548	43	
119109	48	
2937	12	

MS21920-20 Purchased No

200 Each 177.0000 2 2

Clamp (per MIL-DTL-8783C)

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG050	177	
116799	8	
120676	8	
121067	2	
121274	2	
122254	57	
122518	50	
122838	50	

September-13-12 10:09:15 AM

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Page 5

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											
<b>FAULT CATEGORY</b>											
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped. <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other		

# Picklist Print

September-13-12 10:09:15 AM

Page 6

Work Order ID: 90046

Parent Item: D350-748-101

Parent Item Name: Crosstube Installation, High Fwd

Start Date: 9/13/12

Required Date: 10/19/12

Start Qty: 1.00

Required Qty: 1.00

MS27039-1-10

Purchased

No

200

Each

509.0000

1

1

Screw

Location

Loc Qty

Loc Code

308

100

122441

100

GA

100

120449

100

ST291

5

120120

5

ST305

300

122815

300

ST308

4

122027

4

September-13-12 10:09:15 AM

Shop Packet Print

Page 6

NCR: Yes / No

**WORK ORDER-NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

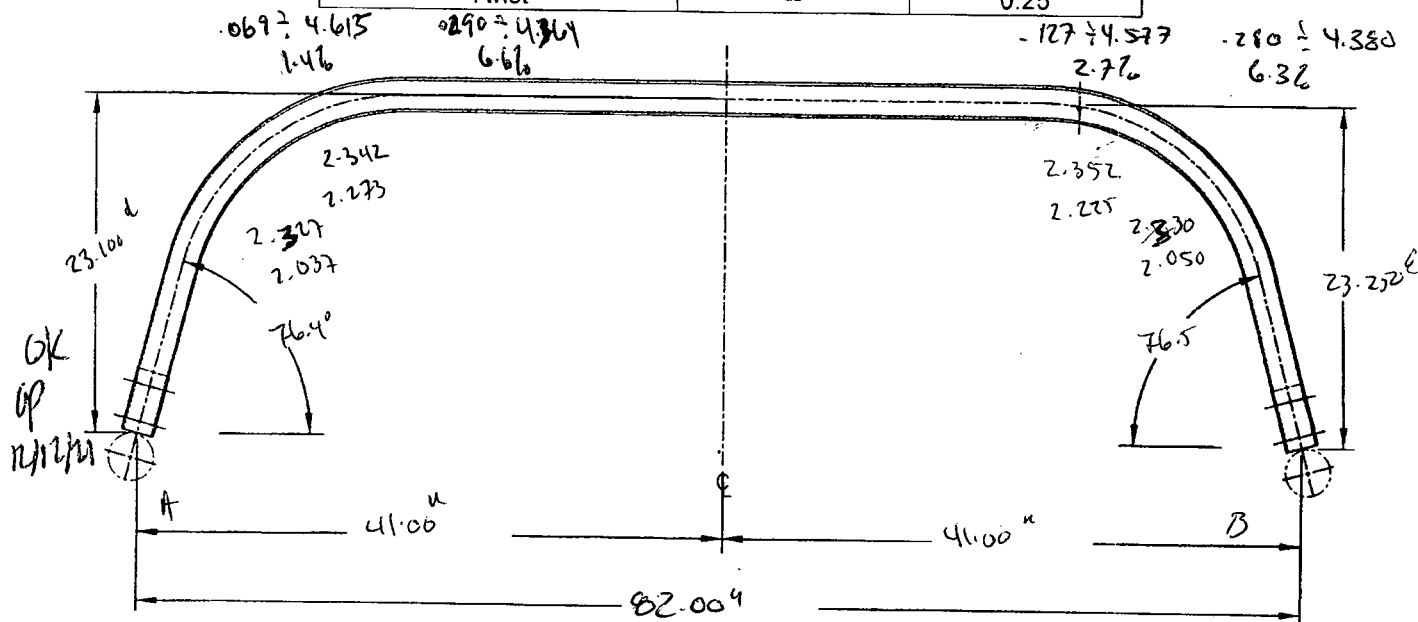
QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____				<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>		<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>					
<b>Root Cause</b>	<b>Date</b>	<b>Step</b>	<b>Qty</b>	<b>Description of work order update or Non-conformance</b>	<b>Initial Chief Eng</b>	<b>Action Description</b>	<b>Sign &amp; Date</b>	<b>Verification</b>	<b>QC Inspector</b>		
Doc/Data <input type="checkbox"/>											
Equip/Tooling <input type="checkbox"/>											
Operator <input type="checkbox"/>											
Material <input type="checkbox"/>											
Setup <input type="checkbox"/>											
Other <input type="checkbox"/>											
Process <input type="checkbox"/>											
Supplier <input type="checkbox"/>											
Training <input type="checkbox"/>											
Unapproved <input type="checkbox"/>											

FAULT CATEGORY										
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube			<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio			<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions			<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge  <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled  <input type="checkbox"/> Other	

<b>DART AEROSPACE LTD</b>		<b>Work Order:</b>	90046
<b>Description:</b> Crosstube High Fwd (AS350/355)		<b>Part Number:</b>	D350-748-101
<b>Inspection Dwg:</b> D350-748-141	<b>Rev:</b> F	<b>Page 1 of 1</b>	

Required Dimension	Min	Max
Height	23.12	23.38
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.55	82.05
Bending Passes	7	--
Crushing	--	6%
Twist	--	0.25



	Side A	Side B
<b>Bending Passes</b>		
<b>Crushing</b>		
<b>Comments</b>		
twist = 0.234		
Side A crushing	= 1.47 @ Top	6.62 @ Bottom
Side B crushing	= 2.77 @ Top	6.32 @ Bottom

QC15 Inspection	DAS
Date	12/12/21

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	
C	11.11.07	Dwg Rev updated	KJ	
D	12.04.16	Added bending, crushing & twist dimensions	KJ	OK

Item	Qty -141	Part Number	Description
1	X	D350-748-141	CROSSTUBE ASSEMBLY (AS 350/355 HI FWD)
2	1	D6015-125	CROSSTUBE (OR D6017-115)
3	2	D3502-1	SUPPORT
4	2	D2856-400-710	ABRASION STRIP
5	1	AELS-1032-225	INSERT
6	1	NAS1149D0363J	WASHER (OR AN960JD10)
7	2	MS21920-20	CLAMP (PER DART SPEC. M-MS21920-20)
8	1	MS27039-1-10	SCREW

# **GENERAL NOTES:**

- 1) MATERIAL: MANUFACTURED FROM D6015-125 OR D6017-115  
FINISHED LENGTH = 110.270±0.06
- 2) FINISH: MAGNETIC PARTICLE INSPECT PER DART QSI 038 4.2  
CADMIUM PLATE PER AMS-QQ-P-416B, CLASS 1, TYPE II  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-141" AND BATCH NUMBER ON INSIDE OF CUFF  
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 30.45 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø0.297 HOLE.
- 9) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.  
NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES. MAXIMUM TUBE FLATTENING DUE TO  
BENDING IS 6% BASED ON O.D.
- 11) HEAT TREAT TO MIN. 180 KSI PER MIL-T-6736 OR AMS 2759-1C AFTER TURNING. ACCEPTABLE TO  
VERIFY TENSILE STRENGTH BY HARDNESS TEST PER ASTM E18 TO 40-45 HRC.
- 12) INSTALL D2856-400-710 ABRASION STRIPS WITH A GAP ON BOTTOM SIDE OF CROSSTUBE,  
CENTERED OPPOSITE D3502-1 SUPPORT, PER QSI 035.
- 13) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE  
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES,  
NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY.  
CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE  
MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO  
CRACKING/CHIPPING/GROOVES.
- 14) TORQUE CLAMPS 60 TO 80 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT  
NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.
- 15) MAX TWIST AFTER BENDING: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN  
CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.25 (ZN C1-3).

SHOP COPY  
RETURN TO  
ENGINEERING  
UNCONTROLLED COPY  
SUBJECT TO AMENDMENT  
WITHOUT NOTICE  
WORK ORDER  
NO. 9-0046 - MLJ  
12-09-14

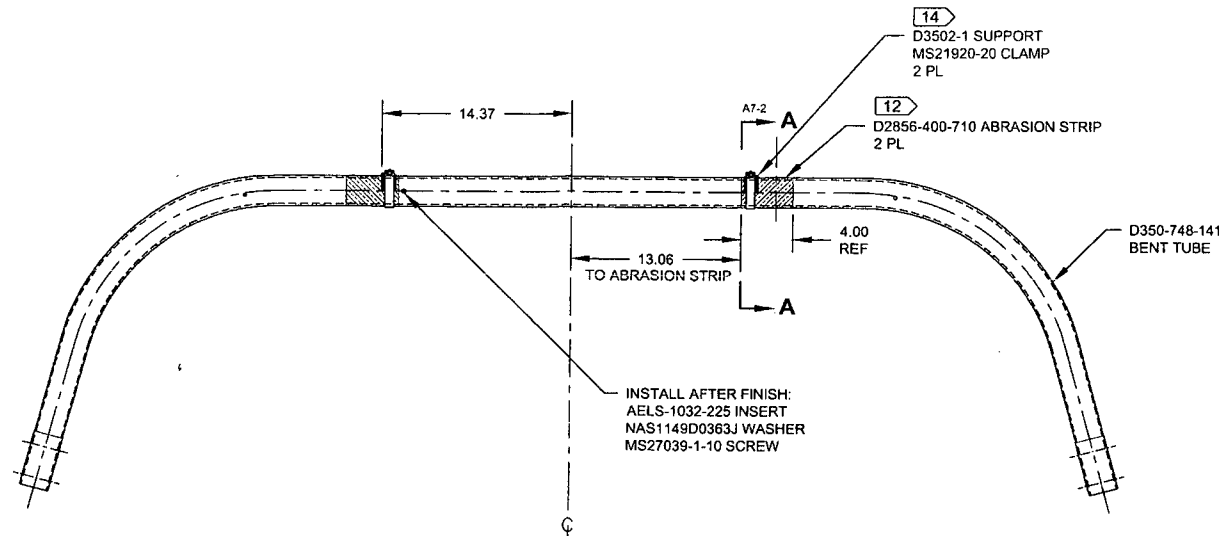
UNDER REVIEW

RELEASED  
2011-01-18

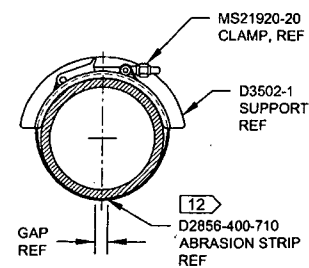
REV.	DESCRIPTION	BY	DATE
F	ADD HRC TEST OPTION (B8-1) PER PAR 09-040, ADD TWIST LIMIT (A8-1, C1-3), ADD D6015-125 OPTION (C8-1), STOCK DIM NOW MACHINED (D1-4)	CP	10.11.23
E	REVISE GENERAL NOTES; UPDATE TO CURRENT ADD STANDARDS; RELOCATED FLAG #6 PER PAR 08-046 (ZN A6-3); TOLERANCES (ZN C6-3, D1-3)	RF	09.09.30
D	MAG. PARTICLE AND CAD PLATE AS MFD.	CP	06.10.31
C	ADD CAD PLATING	CP	06.08.14
B	ADD D6017-115 & PRIME AND PAINT	CP	06.06.30
A	NEW ISSUE	CP	06.03.31
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	10.11.23		

<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWING NO. D350-748-141	REV. F SHEET 1 OF 4
TITLE CROSSTUBE (AS 350/355 HI FWD)	SCALE NTS
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90046



**D350-748-141  
ASSEMBLY DETAIL**



**SECTION A-A** D4-2  
SCALE 4X

UNDER REVIEW

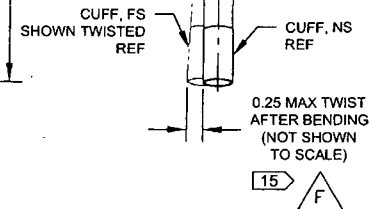
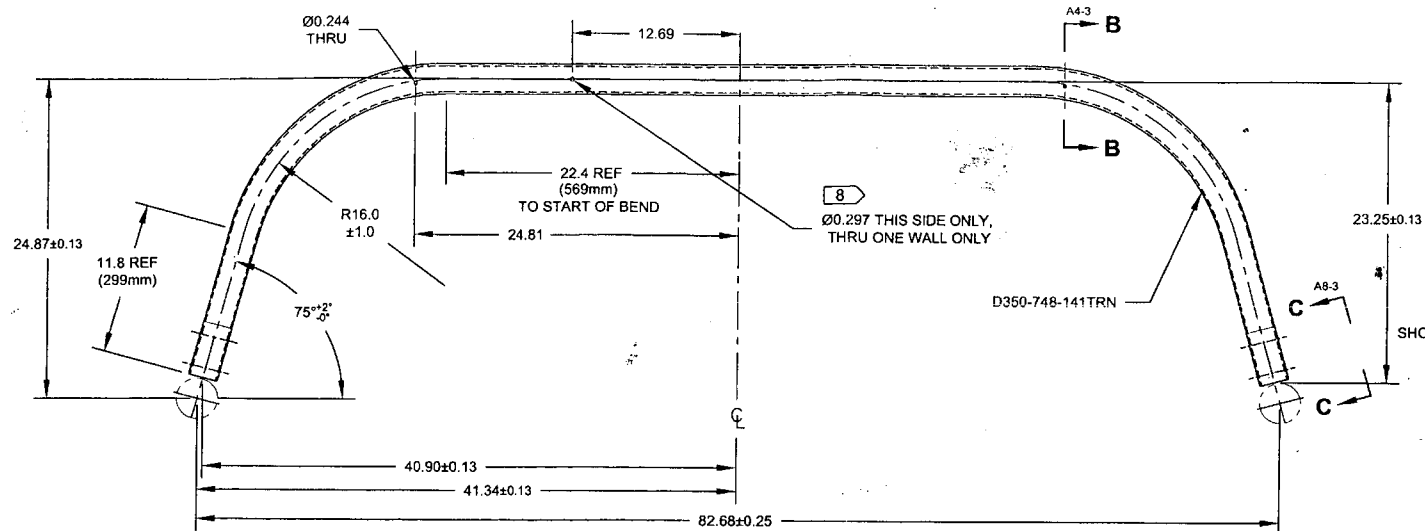
11.07.11

**RELEASED**  
2011-01-18

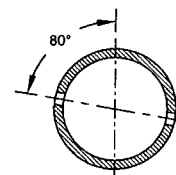
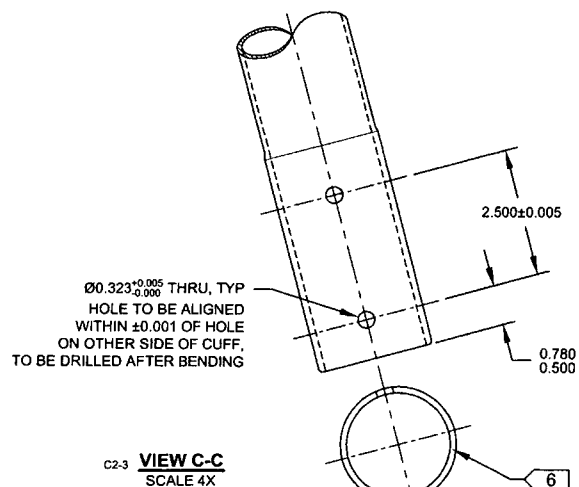
DESIGN		<b>DART AEROSPACE LTD</b>	
DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. F
MFG. APPR.		D350-748-141	SHEET 2 OF 4
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE (AS 350/355 HI FWD)	NTS
DATE	10.11.23	<small>COPYRIGHT © 2005 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1

90046



**D350-748-141**  
**BENDING AND DRILLING DETAIL** 10



**SECTION B-B** D3-3  
SCALE 4X

UNDER REVIEW

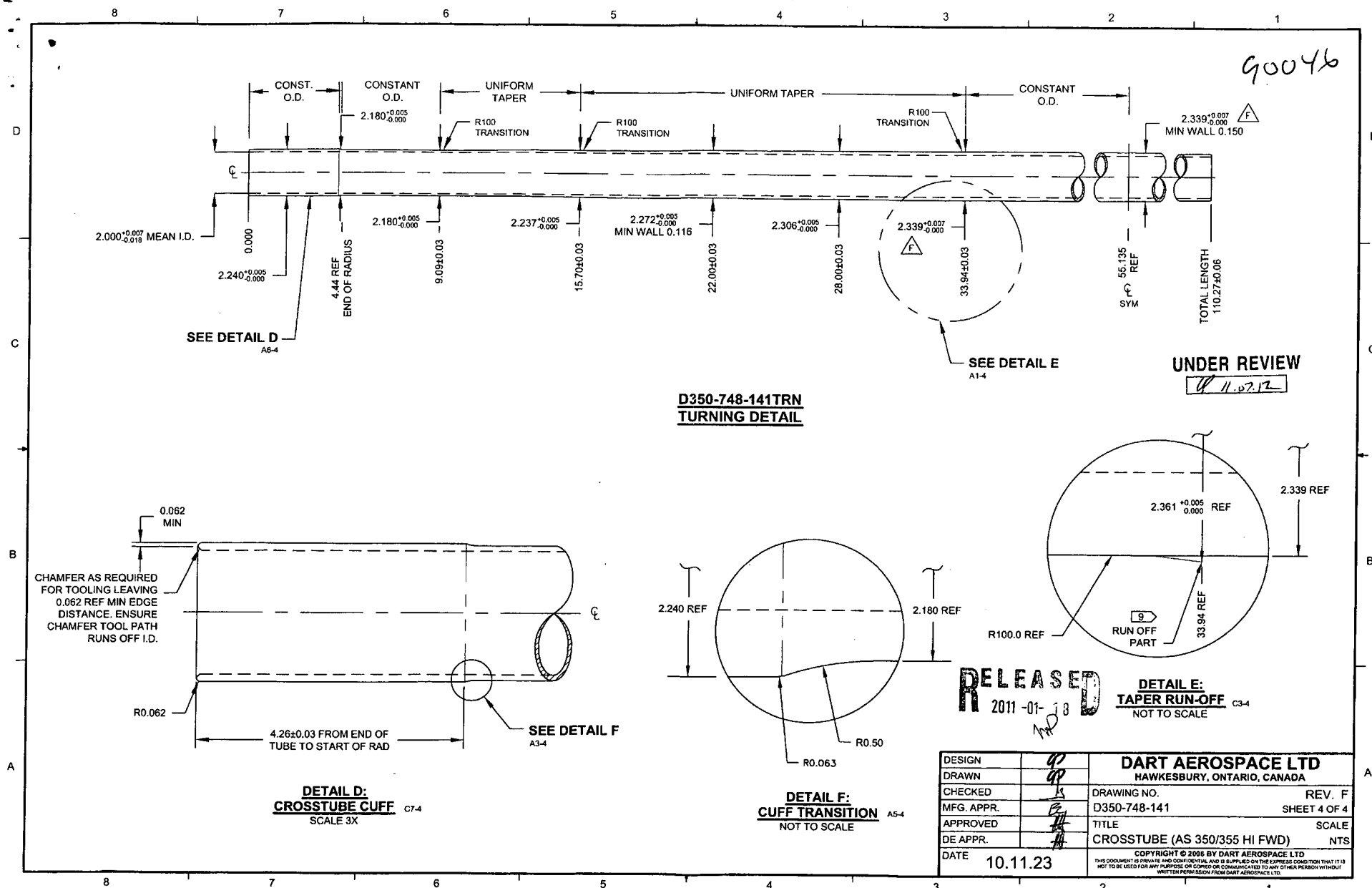
UP 11.07.12

RELEASED  
2011-01-18

DESIGN	90	<b>DART AEROSPACE LTD</b>	
DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED	h	DRAWING NO.	REV. F
MFG. APPR.	h	D350-748-141	SHEET 3 OF 4
APPROVED	h	TITLE	SCALE
DE APPR.	h	CROSSTUBE (AS 350/355 HI FWD)	NTS
DATE	10.11.23	<small>COPYRIGHT © 2008 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL, AND IS SUPPLIED ON THE EXPRESS RECOGNITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

8 7 6 5 4 3 2 1

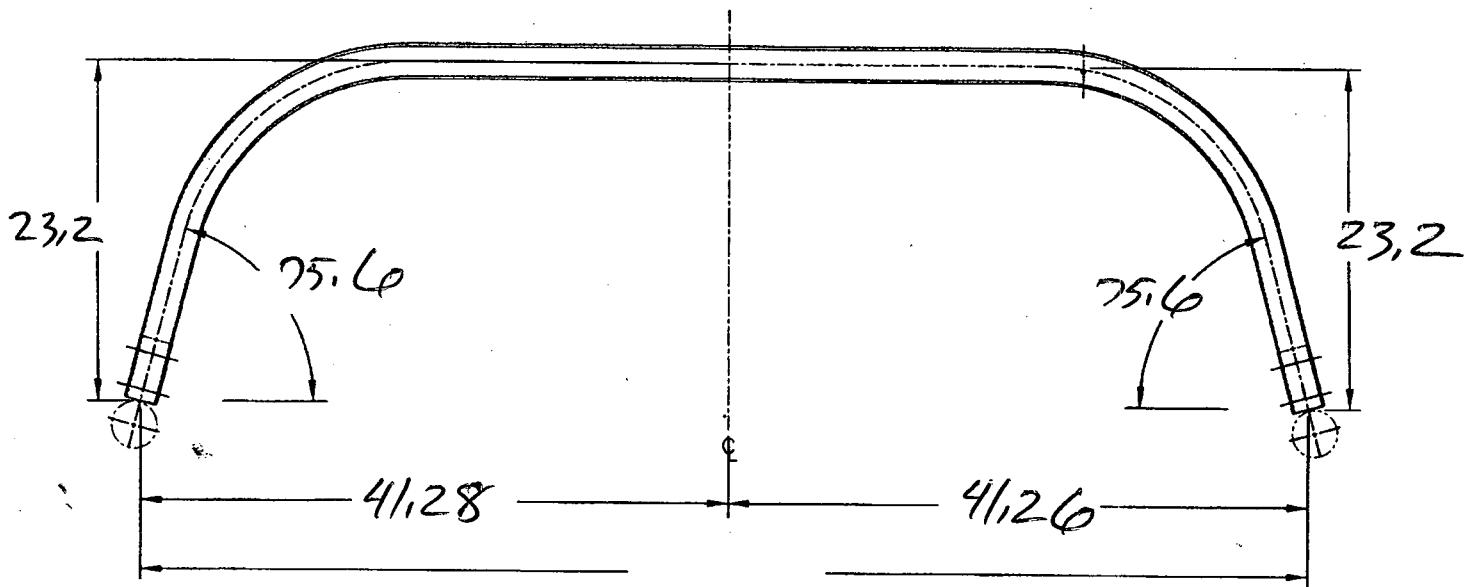




*Measured Before De-Stress*

DART AEROSPACE LTD		Work Order:	90046
Description: Crosstube High Fwd (AS350/355)		Part Number:	D350-748-101
Inspection Dwg: D350-748-141	Rev: F	Page 1 of 1	

Required Dimension	Min	Max
Height	23.12	23.38
1/2 Span	40.77	41.03
Angle	75	77
Total Span	81.55	82.05
Bending Passes	7	--
Crushing	--	6%
Twist	--	0.25



	Side A	Side B
Bending Passes	38	38
Crushing		
Comments		
Twist 2.9"		

*DD*  
12-12-18

QC15 Inspection	
Date	

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	10.08.23	Dwg Rev updated	KJ	
C	11.11.07	Dwg Rev updated	KJ	
D	12.04.16	Added bending, crushing & twist dimensions	KJ	<i>ap</i>

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC J7R 5A8  
Tel: 450-473-1884 / Fax: 450-491-5498

Recu de Livraison

Order	Shipper	Shipping Seq.
182269	1	67436

Shipped Complete

**Customer**

**215**

**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

**Shipped To:**

**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

Purchase Order Number	Customer Shipper No.	Material Type	Order Date	Carrier
PO18651		STEEL	2012/12/19	client

Container Type	# Of Containers	Container Comments
NIL	1	

CERTIFICAT

<b>PACKING</b>	
----------------	--

**Quantity Shipped:** 5

**Pounds Shipped:** 155,00

**Quantity Remaining:** 0

**Pounds Remaining:** 0,00

CERTIFICAT

**Quantity Shipped:** 5

**Pounds Shipped:** 155,00

**Signature:**

**Date:**

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC J7R 5A8  
Tel: 450-473-1884 / Fax: 450-491-5498

## Recu de Livraison

Order	Shipper	Shipping Seq.
182269	1	67436

Shipped Complete

### Customer

**215**

**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

### Shipped To:

**DART AEROSPACE**  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

Purchase Order Number	Customer Shipper No.	Material Type	Order Date	Carrier
PO 18651		STEEL	2012/12/19	client

Quantity	Part No. / Part Name / Part Description	Pounds
----------	---	--------

5 D350-748-101 155,

CROSSTUBE  
(1) CROSSTUBE  
REFERENCE 90046

(1) D350-748-101  
CROSSTUBE  
REFERENCE: 85566

(1) D350-748-101  
CROSSTUBE  
REFERENCE 87340

(1) D350-748-101  
CROSSTUBE  
REFERENCE 91335

(1) D350-748-101  
CROSSTUBE  
REFERENCE 85567

CONTENANT: 1 NIL

CERTIFICAT

Quantity Shipped: 5

Pounds Shipped: 155,00

Signature:

Date:



Metcor Inc.

560 boul. Arthur-Sauvé, St-Eustache (Québec) J7R 5A8

Tél. 450 473-1884

Télécopieur/Fax administration 450 491-5498

Télécopieur/Fax production 450 491-6454

Page 2 / 2

**Certificat de Conformité**  
**Certificate of Compliance**

BON DE TRAVAIL order	CHARGEMENT load
182269	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO 18651				

**SPÉCIFICATIONS DU PROCÉDÉ**

processing specifications

STRESS REL

SAE AMS 2759/1 REV.E

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
Visual			

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
5	155	D350-748-101 CROSSTUBE (1) CROSSTUBE REFERENCE 90046  (1) D350-748-101 CROSSTUBE REFERENCE: 85566  (1) D350-748-101 CROSSTUBE REFERENCE 87340  (1) D350-748-101 CROSSTUBE REFERENCE 91335  (1) D350-748-101 CROSSTUBE REFERENCE 85567  CONTENANT: 1 NIL



Metcor Inc.

Page 1 / 2

560, boul. Arthur-Sauvé, St-Eustache (Québec) J7R 5A8  
Tél. 450 473-1884  
Télécopieur/Fax administration 450 491-5498  
Télécopieur/Fax production 450 491-6454

**Certificat de Conformité**  
**Certificate of Compliance**

BON DE TRAVAIL order	CHARGEMENT load
182269	1

CLIENT / customer 215  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:  
DART AEROSPACE  
1270 ABERDEEN  
HAWKESBURY

1

ON K8A 1K7

COMMENTAIRES / comments

CERTIFIÉ par / Certified by:



DATE: 2012-12-20

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ

ST-EUSTACHE, QC, J7R 5A8

Tel: 450-473-1884 / Fax: 450-491-5498

## Certificat de Conformité Détaillé

Detailed Certificate of Compliance

BON DE TRAVAIL order	CHARGEMENT load
182269	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K6A 1K7

1

Operation	Temp. spécifiée Specified Temp	Temps de trempage Spécifié Specified Soak Temp	Atmosphère	Carbone Carbon Potential	Q-Media Q-Temp	Four # Furnace #	Date Départ Start Date	Heure d'entrée Time In	Heure de sortie Time Out	Date Complétée Date complete
2.00 PREPARING	COMPTAGE									
3.00 STRESS RE	343°C +/- 6°C	2:00	air			701				
4.00 FINAL INSP							12-20-2012			12-20-2012

### COMMENTAIRES / comments

LES TRAITEMENTS THERMIQUES SUR CETTE COMMANDE A ÉTÉ FAIT EN UTILISANT DES ÉQUIPEMENTS EN CONFORMITÉ AVEC LES REQUIS DE LA SPÉCIFICATION AMS2759.

TOUTES LES OPÉRATIONS DE TRAITEMENT THERMIQUE ONT ÉTÉ FAITES EN CONFORMITÉ AVEC LES REQUIS DE LA SPÉCIFICATION DEMANDÉE ET TOUTES LES VÉRIFICATIONS ET LES TESTS DEMANDÉES ONT ÉTÉ FAITES ET DOCUMENTÉES.

AUCUN CHANGEMENT OU DÉROGATION N'A ÉTÉ FAITE PAR RAPPORT AU TRAITEMENT THERMIQUE DEMANDÉ. ON CERTIFIE QUE LE MATÉRIEL A ÉTÉ FABRIQUÉ, ÉCHANTILLONNÉ, TESTÉ ET INSPECTÉ EN ACCORD AVEC LES SPÉCIFICATIONS DU MATÉRIEL ET LE BON DE COMMANDE ET LE MATÉRIEL RENCONTRE LES EXIGENCES SPÉCIFIÉS.

ACCOMPLISHED USING HEAT TREATMENT EQUIPMENT THAT MEETS THE REQUIREMENTS OF AMS 2759. ALL THE HEAT TREATMENT OPERATIONS WERE ACCOMPLISHED IN ACCORDANCE WITH THE REQUESTED/REQUIRED HEAT TREATMENT SPECIFICATION AND ALL REQUIRED VERIFICATIONS TEST HAVE BEEN PERFORMED AND DOCUMENTED. NO UNAUTHORIZED CHANGES OR ALL THE HEAT TREATMENT PROCESSING PERFORMED ON THIS ORDER WAS DEVIATIONS TO REQUIRED HEAT TREATMENT SPECIFICATIONS OR PROCEDURES HAVE BEEN PERFORMED.

WE CERTIFY THAT THE MATERIAL WAS MANUFACTURED, SAMPLED, TESTED AND INSPECTED IN ACCORDANCE WITH THE MATERIAL SPECIFICATION AND THE PURCHASE ORDER AND WAS FOUND TO MEET THE REQUIREMENTS.

APPROUVÉ par / Approved by:

*J. B. O'Brien*

DATE: 2012-12-20



/ Nous certifions que toute l'information comprise sur ce rapport est exacte et conforme aux requis du client. / We certify that all the information on this report is exact and in accordance with the order requirements.







Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO18743**

Purchase Order Date 1/07/13

PO Print Date 1/21/13

Page Number 1 of 3

**Order From :**

VC-CAD002

CADORATH COATING  
2150 LOGAN AVE.  
WINNIPEG, MB R2R 0J2  
CA

**Contact Name**

**Vendor Phone**

**Vendor Fax**

**Vendor Account Nbr**

204 633 9420

204 633 8033

**Buyer**

Chantal Lavoie

**Requisition Nbr**

**Tax Resale Nbr**

**Terms**

**Currency**

**FOB**

10127-2607

Net 30

CAD

Destination-Collect

**Ship To :**

DART AEROSPACE LTD  
1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
CANADA

*REVISED*

Line Nbr	Reference Revision ID Vendor Part Number	Description/ Mfg ID	Req Date/ Taxable	Req Qty/ Unit of Measure	Ship Method	Unit Price	Extended Price
1	85566 ✓	D350-748-101 CROSSTUBE	1/18/13 Yes	✓ 1.00	Day & Ross coll	\$776.2500	\$776.25
		<b>Special</b>	Stress relief at 375degree for 5hrs Magnetic Particle Inspect per ASTM E1444 Cad Plate per AMS-QQ-P-416B, Class 1, Type 2 Embrittle relief at 375 defree for 8 hrs, Chromate Treat C of C req'd				
2	85567 ✓	D350-748-101 CROSSTUBE	1/18/13 Yes	✓ 1.00	Day & Ross coll	\$776.2500	\$776.25
		<b>Speci</b>	Stress relief at 375degree for 5hrs Magnetic Particle Inspect per ASTM E1444 Cad Plate per AMS-QQ-P-416B, Class 1, Type 2 Embrittle relief at 375 defree for 8 hrs, Chromate Treat C of C req'd				

*8P13-01-28*

Change Nbr:

3

Change Date: 1/21/13

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required **YES** NO



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO18743**

Purchase Order Date 1/07/13

PO Print Date 1/21/13

Page Number 2 of 3

**Order From :**

VC-CAD002

CADORATH COATING  
2150 LOGAN AVE.  
WINNIPEG, MB R2R 0J2  
CA

**Contact Name**

**Vendor Phone**

**Vendor Fax**

**Vendor Account Nbr**

204 633 9420

204 633 8033

**Buyer**

**Requisition Nbr**

**Tax Resale Nbr**

**Terms**

**Currency**

**FOB**

Chantal Lavoie

10127-2607

Net 30

CAD

Destination-Collect

QTY	Part Nbr	Part Description	Unit	Price	Amount	Amount
3	87340	D350-748-101 CROSSTUBE	1/18/13	1.00	Day & Ross coll	\$776.2500

Yes

**Special Instr:**

Stress relief at 375degree for 5hrs  
Magnetic Particle Inspect per ASTM E1444  
Cad Plate per AMS-QQ-P-416B, Class 1,  
Type 2  
Embrittle relief at 375 defree for 8 hrs,  
Chromate Treat  
C of C req'd

4	90046	D350-748-101 CROSSTUBE	1/18/13	1.00	Day & Ross coll	\$1,151.2500
---	-------	------------------------	---------	------	-----------------	--------------

Yes

**Special Instr:**

Stress relief at 375degree for 5hrs  
Magnetic Particle Inspect per ASTM E1444  
Cad Plate per AMS-QQ-P-416B, Class 1,  
Type 2  
Embrittle relief at 375 defree for 8 hrs,  
Chromate Treat  
C of C req'd  
EXTRA CARGE: MPI INSPECTION

5	91335	D350-748-101 CROSSTUBE	1/18/13	1.00	Day & Ross coll	\$776.2500
---	-------	------------------------	---------	------	-----------------	------------

Yes

Change Nbr:

3

Change Date: 1/21/13

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required - YES NO

2013-01-28



Dart Aerospace Ltd.  
1270 Aberdeen Street  
Hawkesbury, ON K6A 1K7  
Tel: 613 632 9577  
Fax: 613 632 1053

## PURCHASE ORDER

Purchase Order ID **PO18743**

Purchase Order Date 1/07/13

PO Print Date 1/21/13

Page Number 3 of 3

**Order From :**

VC-CAD002

CADORATH COATING  
2150 LOGAN AVE.  
WINNIPEG, MB R2R 0J2  
CA

**Contact Name**

**Vendor Phone**

**Vendor Fax**

**Vendor Account Nbr**

204 633 9420

204 633 8033

**Buyer**

Chantal Lavoie

**Requisition Nbr**

**Tax Resale Nbr**

**Terms**

**Currency**

**FOB**

10127-2607

Net 30

CAD

Destination-Collect

**Special Inst:** Stress relief at 375degree for 5hrs  
Magnetic Particle Inspect per ASTM E1444  
Cad Plate per AMS-QQ-P-416B, Class 1,  
Type 2  
Embrittle relief at 375 defree for 8 hrs,  
Chromate Treat  
C of C req'd

**PO Total:**

\$4,256.25

5013-01-28

**Change Nbr:**

3

**Change Date:** 1/21/13

No substitution or deviation without  
consent.  
Certificate of Conformity or Material  
Certification required **YES** NO

**Chantal Lavoie**

**From:** Linda Lacelle <llacelle@dartaero.com>  
**Sent:** January 21, 2013 11:47 AM  
**To:** Chantal  
**Subject:** FW: CrossTube P/O 18743 S/N 90046

Could you pls revise PO

**From:** Patrick Smith [mailto:psmith@dartaero.com]  
**Sent:** January-21-13 11:46 AM  
**To:** llacelle@dartaero.com  
**Subject:** FW: CrossTube P/O 18743 S/N 90046

FYI

**From:** chris jones [mailto:chris.jones@cadorath.com]  
**Sent:** January-21-13 11:26 AM  
**To:** 'Patrick Smith'  
**Cc:** 'Cisco Lindo'  
**Subject:** RE: CrossTube P/O 18743 S/N 90046

Hi Pat

Sorry I forgot to include in the last email that there will be a charge of \$375 for the work performed so far. We have MPI inspected the part twice and it was run through the plating process. If you have any questions please let Cisco or I know.

Sincerely



**Chris  
Jones**

Quality Assurance  
Cadorath

Director of

Strength through Diversity

Serving industries that better the world

2070 Logan Avenue  
Winnipeg, Manitoba, Canada R2R 0H9

**Phone** 204.633.2707 **Toll Free** 800.433.7069 **Fax**  
204.632.7663 **Cell** 204.800.1190  
**chris.jones@cadorath.com** **www.cadorath.com**

**Cadorath News**

*This e-mail may contain trade secrets or privileged, undisclosed, or otherwise confidential information. If you have received this e-mail in error, you are hereby notified that any review, copying, or distribution of it is strictly prohibited. Please inform us immediately by e-mail or by phone at (204) 633-9420 and destroy the original transmittal. Thank you for your cooperation.*

**From:** Patrick Smith [mailto:psmith@dartaero.com]  
**Sent:** January-21-13 8:34 AM  
**To:** chris jones; cisco@cadorath.com  
**Cc:** cprovenchal@dartaero.com; Eric Downing; llacelle@dartaero.com; dshepherd@dartaero.com; Mike Petsche  
**Subject:** FW: CrossTube P/O 18743 S/N 90046

Hi Chris,

Our engineering staff has requested the tube returned as is, we will carry out the grinding, inspection and return for Cadmium plating with our next shipment.

Thanks,

Pat

---

**From:** Chris Provencal [<mailto:cprovencal@dartaero.com>]  
**Sent:** January-21-13 9:16 AM  
**To:** 'Patrick Smith'; David Shepherd  
**Cc:** 'Eric Downing'; [llacelle@dartaero.com](mailto:llacelle@dartaero.com); Mike Petsche  
**Subject:** RE: CrossTube P/O 18743 S/N 90046

Pat,

My preference in this case would be to have the tube returned, we grind the tube, then return it to Cadorth in the next shipment. The grinding needs to be done longitudinally, and we won't be able to inspect the surface after CAD plate.

-Chris

---

**From:** Patrick Smith [<mailto:psmith@dartaero.com>]  
**Sent:** Monday, January 21, 2013 7:26 AM  
**To:** 'chris jones'  
**Cc:** 'Cisco Lindo'; [cprovencal@dartaero.com](mailto:cprovencal@dartaero.com); Eric Downing; [llacelle@dartaero.com](mailto:llacelle@dartaero.com)  
**Subject:** RE: CrossTube P/O 18743 S/N 90046

Hi Chris,

Go ahead and blend the mark and cadmium plate the tube, please mark the area on the tube once it is ready to ship and we will carry out a wall thickness check upon its arrival.

Thanks for the heads ups.

Regards,

Pat

---

**From:** chris jones [<mailto:chris.jones@cadorth.com>]  
**Sent:** January-18-13 4:33 PM  
**To:** 'Patrick Smith'  
**Cc:** 'Cisco Lindo'  
**Subject:** CrossTube P/O 18743 S/N 90046

Good afternoon Pat

We have processed a crosstube on P/O 18743 and after plating we have found what appears to be a crack in the tube at MPI. Our Ndt technician has called out a "axial crack 2" long into parent material on outside of crosstube" Now the concern we have is that under white light inspection it appears to be more of a gauge then a crack but we do not want to attempt to blend it out without your okay. Could you please let us know if there are acceptable blend limits or is there another course of action you would like us to take.

Sincerely



**Chris  
Jones**  
Quality Assurance  
Cadorath

Director of

Strength through Diversity  
**Serving industries that better the world**

---

2070 Logan Avenue  
Winnipeg, Manitoba, Canada R2R 0H9

**Phone** 204.633.2707      **Toll Free** 800.470.7069      **Fax**  
204.632.7663      **Cell** 204.801.4190  
**chris.jones@cadorath.com**      **www.cadorath.com**

**Cadorath News**

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**CADORATH GROUP**  
**NON CONFORMANCE REPORT**

CADORATH AEROSPACE ☐

CADORATH DISTRIBUTION ☐

CADORATH COATING ☒

UNIFLYTE ☐

**NOTE:** THIS FORM MUST BE COMPLETED BY: CUSTOMER ☒ VENDOR ☐ BEFORE PROCESSING OF PART(S)

NCR#: **C1125**

CUSTOMER: ☒ **Dart Aerospace**

DATE: **01/22/13**

VENDOR: ☐ **N/A**

PART DESCRIPTION: **Crosstube**

CUSTOMER P/O #: **18743**

PART #: **D350-748-101**

SERIAL #: **90046**

QUANTITY: **one ( 1 )**

PURCHASE ORDER INSTRUCTIONS: **CADMIUM PLATE IAW AMS-QQ-P-416C TYPE 2 YELLOW CLASS 2**

DISCREPANCY: **ONE CRACK 2 INCHES IN LENGTH WAS FOUND DURING MPI.**

**TRAVIS SZABO**

CADORATH/UNIFLYTE INSPECTION DEPARTMENT

CI  
22

CUSTOMER: ☒

VENDOR: ☐ PLEASE COMPLETE THIS PORTION, SIGN AND RETURN TOP COPY OF THIS FORM TO CADORATH/UNIFLYTE

DATE: **01/22/13** P/O: **18743**

CUSTOMER INSTRUCTIONS: ☐

VENDOR CORRECTIVE ACTION: ☐

**ATTENTION: QA-Inspection**

AUTHORIZED SIGNATURE

NAME AND TITLE

DATE: 01/13/10

FORM: OPS 097  
REVISION: 3

# Packing Slip



## Cadorath Coating

2150 Logan Avenue, Winnipeg, Manitoba R2R-0J2

Phone: (204) 633-9420 Fax: (204) 633-8033

**INVOICE NUMBER:**

**S 64236**

Net 2% Interest Per Month charged on Overdue Accounts.

Any claims for shortages, overcharges, or damaged goods must be made within seven (7) days from receipt of goods.

<b>Sold To:</b> Dart Aerospace Ltd. 1270 Aberdeen St.  Hawksbury, ON K6A 1K7
<b>ShipTo:</b>

<b>Customer Order #:</b> PO18743	<b>Date Received:</b> Jan-09-2013	<b>Terms:</b> NET 30 DAYS	<b>G.S.T. #:</b> 10071 6547 RT0001	<b>Ship Via:</b>	<b>Ship Date:</b> Jan-22-2013
-------------------------------------	--------------------------------------	------------------------------	---------------------------------------	------------------	----------------------------------

Item #	Qty	P/N & Description	
1	1 EA	CROSSTUBE	S/N 85566
		P/N d350-748-101	W/O 120849
2	1 EA	CROSSTUBE	S/N 85567
		P/N d350-748-101	W/O 120850
3	1 EA	CROSSTUBE	S/N 87340
		P/N d350-748-101	W/O 120851
4	1 EA	CROSSTUBE	S/N 91335
		P/N d350-748-101	W/O 120853
5	1 EA	CROSSTUBE	S/N 90046
		P/N d350-748-101	W/O 120852



**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Jan-22-2013

**CONIGNED TO:** Dart Aerospace Ltd.  
1270 Aberdeen St.  
Hawksbury, ON K6A 1K7

**W/O #:** 120853

**INVOICE #:** 64236

**CONTRACT OR  
PURCHASE ORDER #** PO18743

**DESCRIPTION:** CROSSTUBE

**QTY** 1

**P/N #** d350-748-101

**S/N #** 91335

STRIP AND CADMIUM PLATING IAW AMS-QQ-P-416C TYPE 2  
YELLOW CLASS 2. MPI IAW ASTM-E-1444. BAKE HEAT CHART # 13-  
30, 13-53.

**CERTIFICATE:** I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.



**Approved Inspector:**

A handwritten signature in black ink, appearing to be 'Z' followed by a flourish.

**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Jan-22-2013

**CONSIGNED TO:** Dart Aerospace Ltd.  
1270 Aberdeen St.  
Hawksbury, ON K6A 1K7

**W/O #:** 120851

**INVOICE #:** 64236

**CONTRACT OR  
PURCHASE ORDER #** PO18743

**DESCRIPTION:** CROSSTUBE

**QTY** 1

**P/N #** d350-748-101

**S/N #** 87340

STRIP AND CADMIUM PLATING IAW AMS-QQ-P-416C TYPE 2  
YELLOW CLASS 2. MPI IAW ASTM-E-1444. BAKE HEAT CHART # 13-  
30, 13-53.

**CERTIFICATE:** I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.

**Approved Inspector:**



**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Jan-22-2013

**CONSIGNEE TO:** Dart Aerospace Ltd.  
1270 Aberdeen St.  
Hawksbury, ON K6A 1K7

**W/O #:** 120850

**INVOICE #:** 64236

**CONTRACT OR  
PURCHASE ORDER #** PO18743

**DESCRIPTION:** CROSSTUBE

**QTY** 1

**P/N #** d350-748-101

**S/N #** 85567

STRIP AND CADMIUM PLATING IAW AMS-QQ-P-416C TYPE 2  
YELLOW CLASS 2. MPI IAW ASTM-E-1444. BAKE HEAT CHART # 13-  
30, 13-53.

**CERTIFICATE:** I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.



**Approved Inspector:**

A handwritten signature in black ink, appearing to be a stylized 'J' or 'K' followed by a horizontal line.

**CERTIFICATE OF  
CONFORMANCE**

**CADORATH PLATING CO. LTD.  
2150 LOGAN AVENUE  
WINNIPEG, MANITOBA R2J-0J1**

**DATE:** Jan-22-2013

**CONSIGNED TO:** Dart Aerospace Ltd.  
1270 Aberdeen St.  
Hawksbury, ON K6A 1K7

**W/O #:** 120849

**INVOICE #:** 64236

**CONTRACT OR  
PURCHASE ORDER #** PO18743

**DESCRIPTION:** CROSSTUBE

**QTY** 1

**P/N #** d350-748-101

**S/N #** 85566

STRIP AND CADMIUM PLATING IAW AMS-QQ-P-416C TYPE 2  
YELLOW CLASS 2. MPI IAW ASTM-E-1444. BAKE HEAT CHART # 13-  
30, 13-53.

**CERTIFICATE:** I certify that the items indicated here on have  
been inspected and tested and conform to all specifications  
and requirements detailed on the contract or purchase order.

**Approved Inspector:** \_\_\_\_\_



**IMPORTANT - PLEASE READ**  
 STAIN FOR MATCHING UP WITH  
 OUR DESCRIPTIVE INVOICE THAT  
 WILL FOLLOW. THIS IS THE ONLY  
 COPY YOU WILL RECEIVE.

**IMPORTANT - VEUILLEZ S.V.P. LIRE**  
 GARDER CETTE COPIE POUR  
 VÉRIFICATION AVEC L'ÉTAT DE COMPTE  
 DÉTAILLÉ QUI SUIVRA. CECI EST LA SEULE  
 COPIE QUE VOUS RECEVREZ.



**CUSTOMER'S COPY**  
**COPIE DU CLIENT**

NIR R-500048-5

G.S.T./T.P.S.  
**R119361467**

[www.dayross.ca](http://www.dayross.ca)

**WPG 1745301**

OTT  
 DEST.

PICK-UP DATE / DE CUEIL.	PPD/COLL.	INPUT	CODE	RATE	MISC./DIVERS
JAN 22 2013	C	MZC	MZC	IBM	

<b>SHIPPER / EXPÉDITEUR</b> CADORATH PLATING CO LTD 2150 LOGAN AVE WINNIPEG MB R2R 0J2 070854		<b>LEVEL OF SERVICE / NIVEAU DE SERVICE</b> GENERAL LTL 18743		<b>DECLARED VALUE / VALEUR DÉCLARÉE</b> CUSTOMER REF. NO. / N° RÉF. DU CLIENT SPECIAL INSTRUCTIONS / INSTRUCTIONS SPÉCIALES	
<b>CONSIGNEE / CONSIGNATAIRE</b> DART AEROSPACE LTD 1270 ABERDEEN STREET HAWKESBURY ON K6A 1K7 PH.# 6323336 038326		<b>BILL TO / FACTURÉ À</b> DART AEROSPACE LTD 1270 ABERDEEN STREET HAWKESBURY ON K6A 1K7 038326		<b>METHOD OF PAYMENT / MODE DE PAIEMENT</b> <input type="checkbox"/> CASH COMPTANT <input type="checkbox"/> ACCOUNT NO.: <input type="checkbox"/> VISA <input type="checkbox"/> MC <input type="checkbox"/> AMEX <input type="checkbox"/> EXPIRY: DATE D'EXP.: CARD NO.: N° DE CARTE:	

ADVANCE CARRIER / NOM DU TRANSPORTEUR PRÉCÉDENT ADVANCE PRO NO. / N° DE FACT. PRÉ. BEYOND CARRIER NAME / TRANSPORTEUR SUBSÉQUENT

PIECES / PIÈCES	DESCRIPTION OF ARTICLES & MARKS / DESCRIPTION DES OBJETS ET DE LEURS MARQUES	WEIGHT / POIDS	LB	RATE / TAUX	GROSS AMOUNT / MONTANT BRUT	% DISC. / % ESC.	NET AMOUNT / MONTANT NET
1	ASWT TRFAMT TARIFF PONUM FTAXLT ONHST PC/PLATED PARTS VOLUME WEIGHT IN POUNDS TARIFF AMOUNT 30508Q 18743 FUEL SURCHARGE LTL ONHST/TVH (131) 0001@ 090.00x034.00x034.00 @IN TOTAL CUBIC FEET 60.21		120 602 602 602				243.75 54.60 38.79
1	TOTAL # OF PIECES			YARD ARRIVAL TIME AT CONSIGNEE			

ADDITIONAL CHARGES / FRAIS ADDITIONNELS ☐ HOME DELIVERY / LIVRAISON À MAISON ☐ EXCESS FLOORS / ÉTAGE EXCÈS ☐ REDELIVERY / 2-ÈME LIVRAISON ☐

48105

**PAYMENT DUE UPON RECEIPT / PAIEMENT SUR RÉCEPTION**

.00C

**SEE TERMS AND CONDITIONS ON REVERSE**  
 NO CLAIMS WILL BE ACCEPTED UNLESS NOTED  
 ON CARRIER'S COPY AT TIME OF DELIVERY

**VOIR TERMES ET CONDITIONS AU VERSO**  
 AUCUNE RÉCLAMATION NE SERA ACCEPTÉE À MOINS D'ÊTRE  
 INDIQUÉE SUR LA COPIE DU TRANSPORTEUR LORS DE LA LIVRAISON

**PROOF OF DELIVERY**  
**PREUVE DE LIVRAISON**